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COMPARATIVE ANALYSIS OF FINANCIAL SYSTEMS IN SLOVENIA AND UKRAINE

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Abstract. This paper analyses and compares indicators of mobilize and pool savings, information provision, risk sharing, and corporate governance for performance of financial system its functions in Slovenia and Ukraine. The results confirmed bank-based financial system in both countries, which is more advance in economically more developed Slovenia than in Ukraine. Slovenia has experienced deterioration in performance the post-economic and financial crisis period. Financial intermediaries play crucial roles for savings, while bank loans play crucial role for financing of enterprises. Loans play crucial role for financing of very large farms in Ukraine, while prevailing family farms in Slovenia importantly relies also on off-farm incomes and subsidies for agriculture and rural development.

Key words: financial indicators, financial system, comparative analysis, agriculture and rural finance, Slovenia, Ukraine

INTRODUCTION

The literature and global practice classify financial system of countries as more bank-based or more market-based. In a bank-based system, banks play a key role in the handling funds from capital providers to non-financial corporations. In the bank-based system, network of banks pools dispersed savings and plays an important role as delegated monitors of the enterprises they lend to, on behalf of deposit holders [Boot, Thakor 2008]. In the market-based system relationship

between the savers and enterprises is carried out mainly through the financial market, where enterprises can more quickly obtain sufficient funding by participating in markets for tradable securities.

The division of financial systems on bank-based and market-based is rather nominal. For example, in the United States (US), which belongs to the type of market-based financial system, the financial system is characterized by a very important role of banks in financing smaller businesses. Similarly, in traditionally bank-based system in Germany, the market for corporate bonds has grown significantly over the past decade. The growth of global financial system has shifted the balance in the direction of market-based structure and its significant changes in most of the developed countries [Rajan, Zingales 2003]. Since the financial crisis in 2008, the financial system has begun to show signs of a tendency to increase bank-based financial system [Jagric et al. 2014]. Therefore, the division of financial systems on the market-based and bank-based is universally effective tool that allows comparing the financial system between the countries.

This paper focuses on the comparisons of the financial systems in Slovenia and Ukraine. The former is a small open economy in the European Union (EU), while the latter is in a search for its future development of financial and economy systems. The characteristics of the financial system might be important for its role and serving of different sectors of the economy. In our case this is related to the financial system for agriculture and development of the rural economy.

MATERIAL AND METHODS

A new approach has been developed over the past 10 years to assess performance of the financial system. This involves the use of indicators that characterize how well the system performs its function [Hartmann et al. 2007, Beck et al. 2009]. The financial system performs the following four main functions: mobilize and pool savings, information provision, risk sharing, and corporate governance [Allen, Gale 2001, Levine et al. 2005].

The literature distinguishes two basic approaches to constructing a system of indicators to assess the financial systems. The first one belongs to a group of experts of the World Bank [Cihak et al. 2012], which has developed indicators that are regularly evaluated by the World Bank and form the Global Financial Development (GFD) database, which includes indicators for countries over time. The GFD database serves as a matrix of 4 × 2, where 4 refers to four groups of parameters such as depth, access, efficiency, and stability of the financial system, and 2 refers to the structural elements of the system, which are defined as financial institutions (banks, insurance companies, and others) and financial markets (such as equity markets and bonds). The indicators are developed for each structural element of

the financial system (financial institutions and financial markets) that characterize its depth, access, efficiency, and stability. However, these indicators do not fully determine the financial system's performance of its functions and missing are indicators that measure how the financial system provides information, promotes corporate governance, and creates conditions for risk sharing.

The second group of indicators is from the European Central Bank (ECB). These indicators provide an assessment of a financial system's performance of its functions based on the following groups of dimensions: size of capital markets and financial structure; financial innovation and market completeness; transparency and information; corporate governance; legal system; financial regulation, supervision and stability; competition, openness and financial integration; and economic freedom, political and socioeconomic factors [Hartmann et al. 2006]. These groups of indicators measure more fully the completeness of the functions of the financial systems. However, they characterize the performance of these functions basically, i.e. banks are representatives of the financial system, while financial markets are a neglected segment of the financial sector.

Thus, according to the functions of the financial system and its performance, the indicators are distinguished into four groups: mobilize and pool savings, information provision, risk sharing, and corporate governance (Table 1).

TABLE 1. Performance evaluation of the efficiency of the financial system

The functions of the financial system	Indicators
Mobilize and pool savings	Bank deposits to gross domestic product – GDP [%] Private credit by deposit money banks to GDP [%] Stock market capitalization to GDP [%] Stock market total value traded to GDP [%]
Information provision	Bank deposits to GDP [%] Stock market capitalization to GDP [%] Credit depth of information index
Risk sharing	Credit depth of information index Boone indicator Bank concentration [%] Stock market turnover ratio [%]
Corporate governance	Strength of legal rights index Business extent of disclosure index

Source: Composed by the authors based on Hartmann et al. 2006 and Cihak et al. 2012.

Mobilize and pool savings indicators may be estimated on the basis of the following four indicators: bank deposits to GDP [%], private credit by deposit money banks to GDP [%], stock market capitalization to GDP [%], and stock market total value traded to GDP [%]. The first and third indicators determine the extent

and coverage of the pool savings through financial intermediaries and financial markets respectively. The second indicator shows the effectiveness of using pool savings by financial intermediaries in terms of financial resources provided to the private sector by domestic money banks as a share of GDP. Domestic money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits. The higher is the value of this indicator, the higher is the level of financial sector development in the country. The third indicator describes total value of all listed shares in a stock market as a percentage of GDP. The growth of this indicator also shows the development of the financial system. However, the development of the financial market in the country is more commonly presented by the fourth indicator, which characterizes the size and activity of the stock market. The volume of trading in securities is closely related to the pace of economic development [Levine, Zervos 1998].

Information provision indicators based on the nature of the functions of the financial system: bank deposits to GDP [%], stock market capitalization of listed companies to GDP [%], and credit depth of information index. Bank deposits to GDP [%] includes demand, time and saving deposits in deposit money banks as a share of GDP.

Credit depth of information index ranges from 0 to 6, with higher values indicating the availability of more credit information, from either a public registry or a private bureau, to facilitate lending decisions and the better the financial sector plays a role of information provision. This index also describes how the financial system plays the role of risk sharing. Availability and wide coverage of the credit bureaus will help reduce information asymmetry and thereby lowering risk.

In addition to the credit depth of information index, risk sharing indicators are based on: Boone indicator, bank concentration [%], and stock market turnover ratio [%]. The first and second indicators measure level of competition. Boone indicator is a measure of degree of competition based on profit-efficiency in the banking market. It is calculated as the elasticity of profits to marginal costs. An increase in the Boone indicator implies a deterioration of the competitive conduct of financial intermediaries. Bank concentration [%] is defined as a share of assets of three largest commercial banks in total commercial banking assets. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax assets, discontinued operations and other assets. The third indicator measures efficiency of financial markets. Stock market turnover ratio is defined as total value of shares traded during the period divided by the average market capitalization for the period.

An additional indicator of market structure and bank competition is Lerner index of market power in the banking market. Lerner index compares output pricing and marginal costs from underlying bank-by-bank data from Bankscope or it

is defined as the difference between output prices and marginal costs (relative to prices) and represents markup in the banking sector. Prices are calculated as total bank revenue over assets, whereas marginal costs are obtained from an estimated translog cost function with respect to output. Higher values of the Lerner index indicate less bank competition and thus an increase in the Lerner index indicates a deterioration of the competitive conduct of financial intermediaries.

Corporate governance indicators include: strength of legal rights index and business extent of disclosure index. Strength of legal rights index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 10, with higher scores indicating that these laws are better designed to expand access to credit and that the financial intermediaries better enhance corporate governance. Business extent of disclosure index measures the extent to which investors are protected through disclosure of ownership and financial information. The index ranges from 0 to 10, with higher values indicating more disclosure.

Considering the above presented available indicators to determine the type of financial systems in Slovenia and Ukraine, we have chosen these indicators from the World Bank [World Bank 2014a, b] statistics for the time-series analysis and cross-country comparisons and analysis.

RESULTS AND DISCUSSION

We analyze indicators, which characterize mobilize and pool savings of financial system: bank deposits to GDP [%], private credit by deposit money banks to GDP [%], stock market capitalization to GDP [%], and stock market total value traded to GDP [%].

The percentage of bank deposits to GDP in Slovenia is higher than in Ukraine (Figure 1). However, the gap with faster increase in Ukraine than in Slovenia over time has narrowed, but has widened a slightly since 2009. The percentage of the private credit by deposit money banks and other financial institutions to GDP in Slovenia has been higher than in Ukraine. The percentage of private credit by deposit money banks to GDP has increased in Slovenia, while in Ukraine up to 2009, and has declined after then.

Figure 2 compares the percentage of stock market capitalization to GDP and the percentage of stock market total value traded to GDP. Stock market capitalization to GDP [%] represents value of listed shares to GDP. The evolution in levels and patterns in development of the percentage of the stock market capitalization to GDP has expressed some similarities and differences between Slovenia and Ukraine. The volatility in the percentage of stock market capitalization to GDP is seen for both Slovenia and Ukraine. The increasing pattern in the percentage of

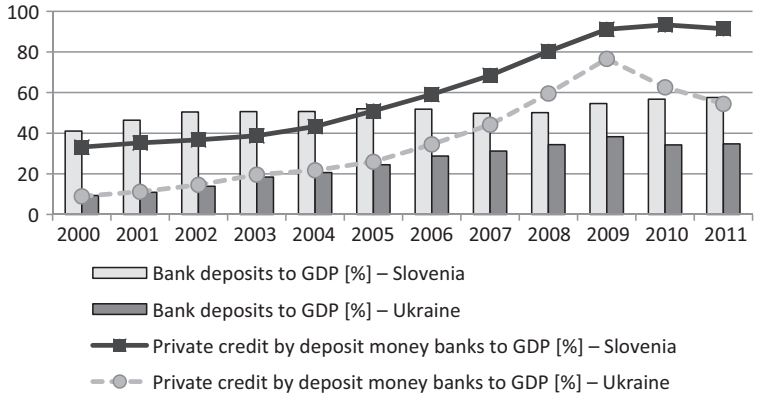

FIGURE 1. Bank deposits to GDP [%] and private credit by deposit money banks to GDP [%] in 2000–2011

Source: Own estimates based on data from World Bank 2014a.

FIGURE 2. Stock market capitalization to GDP [%] and stock market total value traded to GDP [%] in 2000–2011

Source: Own estimates based on data from World Bank 2014a.

stock market capitalization to GDP is a slightly higher for Ukraine than for Slovenia. Since 2008, the substantial deterioration is seen in the percentage of stock market total value traded to GDP in Slovenia, while it has increased steadily for Ukraine.

The percentage of the stock market total value traded to GDP has increased steadily in Ukraine from relatively low initial value, while during and after the economic recession this has collapsed in Slovenia. In 2011, the percentage of the stock market total value traded to GDP was higher in Ukraine than in Slovenia. These findings suggest less favourable developments in these two indicators following the financial and economic crisis in Slovenia.

We analyzed indicators, which characterize information provision of the financial system: bank deposits to GDP [%], stock market capitalization to GDP [%], and credit depth of information index. The percentage of the bank deposits to GDP and the percentage of the stock market capitalization to GDP were presented earlier among mobilize and pool savings indicators.

The higher value of credit depth of information index indicates that the financial sector plays the better role in information provision. Credit debt information index was initially higher for Slovenia, then similar, and in 2013 higher in Ukraine than in Slovenia. Figure 3 shows significant growth in the index for Ukraine, which is testified to improve financial system's performance its function in terms of information provision.

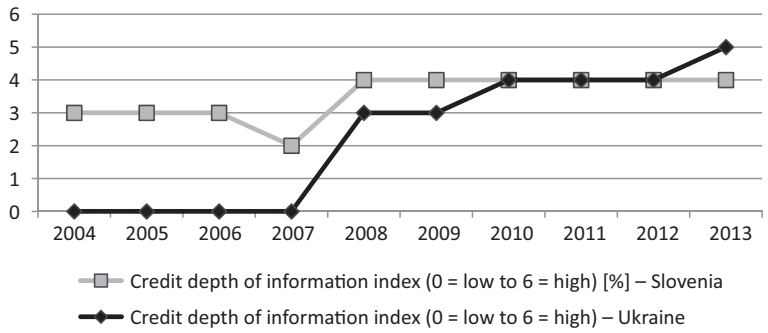

FIGURE 3. Credit depth of information index in 2004–2013

Source: Own estimates based on data from World Bank 2014b.

In addition to credit depth of information index, the analysed risk sharing indicators are: Boone indicator, bank concentration [%], and stock market turnover ratio [%] – Figure 4. In addition, in Figure 5 is presented Lerner index. The Boone indicator for Slovenia has been continually negative with smaller oscillations over time than for Ukraine, which most recently has experienced also positive values for the Boone indicator.

The bank concentration has changed over the analyzed period 2000–2011. The bank concentration in Slovenia tends to decline a slightly. This evolution in pattern of development in the bank concentration is less clearly visible for Ukraine with cyclical development over time with the decline up to 2006 and with the later increases. However, bank concentration in Slovenia has declined a slightly, while in Ukraine it has again increased since 2006.

It can be seen rather similar evolution in levels and patterns in development for the percentage of stock market turnover ratio in Slovenia and Ukraine with a slight increase for Ukraine and decline for Slovenia in the recession and post recession period 2008–2011.

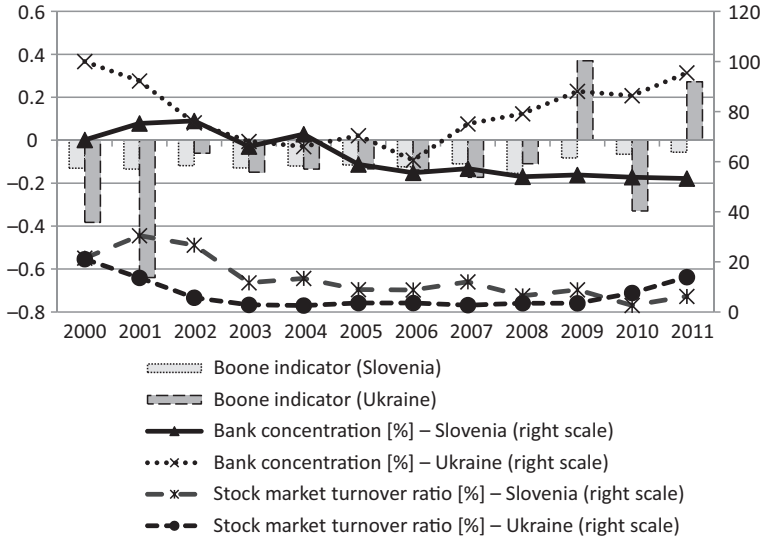

FIGURE 4. Boone indicator, bank concentration [%], and stock market turnover ratio [%] in 2000–2011

Source: Own estimates based on data from World Bank 2014a.

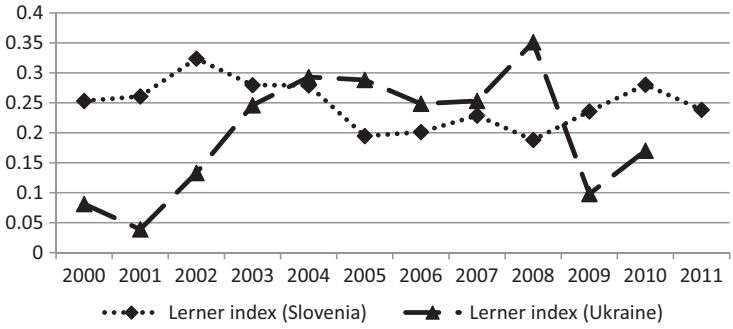

FIGURE 5. Lerner index in 2000–2011

Source: Own estimates based on data from World Bank 2014a.

The high volatility for Ukraine over time is also seen from the evolution in pattern of development of the Lerner index with the picks in 2004 and particularly in 2008. The Lerner index for Slovenia also indicates some oscillations over time. They are smaller than for Ukraine.

We analysed indicators, which characterize the corporate governance: strength of legal rights index and business extent of disclosure index. Strength of legal rights index has been higher for Ukraine than for Slovenia (Figure 6). Between 2009 and 2011, this holds also for business extent disclosure index, while in the years 2012–2013 they are at the similar levels for both analyzed countries.

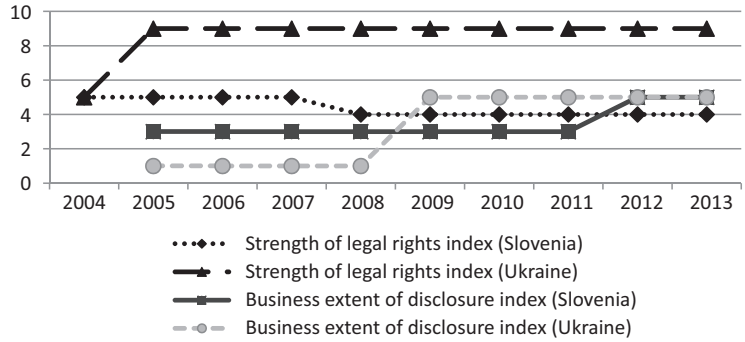

FIGURE 6. Strength of legal rights index and business extent of disclosure index in 2004–2013

Source: Own estimates based on data from World Bank 2014b.

To classify financial systems, the first indicator is to compare the size of banking systems: volumes of bank loans, as well as deposits held by households, which are expected to be larger in bank-based systems than in market-based systems. And contrary, tradable debt and equity would be more important in market-based systems, resulting in more sizeable and active markets in both stocks and corporate bonds [Bijlsma, Zwart 2013].

Typically, bank-based systems are associated to financing, which is more relationship-based: investors and enterprises, which invest, they have stronger ties. In more market-based system, in contrast, enterprises are less strictly linked into relations with their financiers. In market-based systems, there is more competition among financiers, which lowers interest rate margins, and information about enterprises is more widely available. This makes trading of securities easier, and it can be expected larger and more liquid markets for securities in market-based systems [Rajan, Zingales 2003].

Figure 7 presents the summary of the results on the financial systems in Slovenia and Ukraine on the basis of five indicators: deposit money banks' assets to GDP [%]; private credit by deposit money banks to GDP [%]; bank deposits to GDP [%]; stock market capitalization to GDP [%]; and stock market total value traded to GDP [%].

Slovenia and Ukraine can be attributed to the countries having a clearly defined bank-based financial system. This is confirmed by strong performance on the role of banks. In particular, Slovenia and Ukraine have high indicators of the share of bank assets to GDP: 103.7 and 64.5%, respectively; bank deposits to GDP: 57.6 and 34.7%; and bank loans to GDP: 91.5 and 54.5%. At the same time in Slovenia the indicators of banks are almost two times higher than in Ukraine, indicating a higher level of development of the financial system. We can conclude that in Slovenia and Ukraine savings are principally through financial intermediaries and

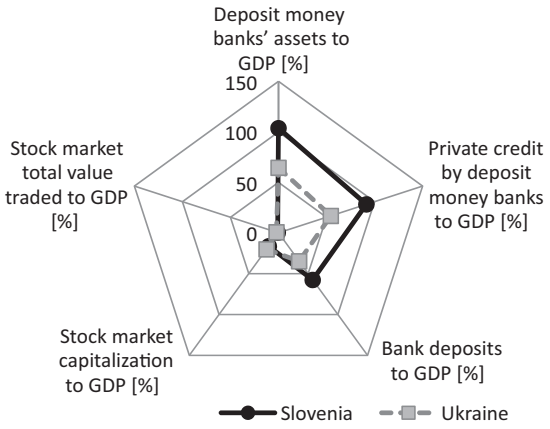

FIGURE 7. Comparison of financial systems Slovenia and Ukraine in 2011

Source: Own estimates based on data from World Bank 2014a.

enterprises finance their needs through loans from banks, which is a sign of the bank-based financial system.

There are a large number of researches that discuss the relationship between financial development and economic growth [Schmidt, Hryckiewicz 2006]. Mostly they conclude positive relationship between development of financial system and economic growth. However, there is missing research on the link between financial development and agriculture [Bojnec, Latruffe 2011, Bojnec 2012]. For this purpose we took five indicators, which were used to determine the type of financial system and indicator of agriculture value added per worker as an indicator for level of agricultural development. Correlation analysis showed the strongest positive correlation between the percentage of private credit by deposit money banks to GDP and agriculture value added per worker, which was the basis for constructing the relevant models of simple linear regression for Slovenia and Ukraine (Figure 8).

On the basis of these results we can derive the following two main findings. First, in both countries there is a significant relationship between two selected analyzed indicators. The test parameters of linear regressions for Slovenia and Ukraine, respectively, confirmed the adequacy of the partial regression models. Second, the development of agriculture in Ukraine according to the constructed regression models is less sensitive to the development of the financial system than in Slovenia, as evident from the lower value of the slope coefficient in the partial regression equation. For example, changes in the financial system in Ukraine led only to minor changes in agriculture value added per worker. This result is consistent with Bojnec et al. [2014], where only large farms in Ukraine greatly depend on banking system, while small and households farm are outside the banking and

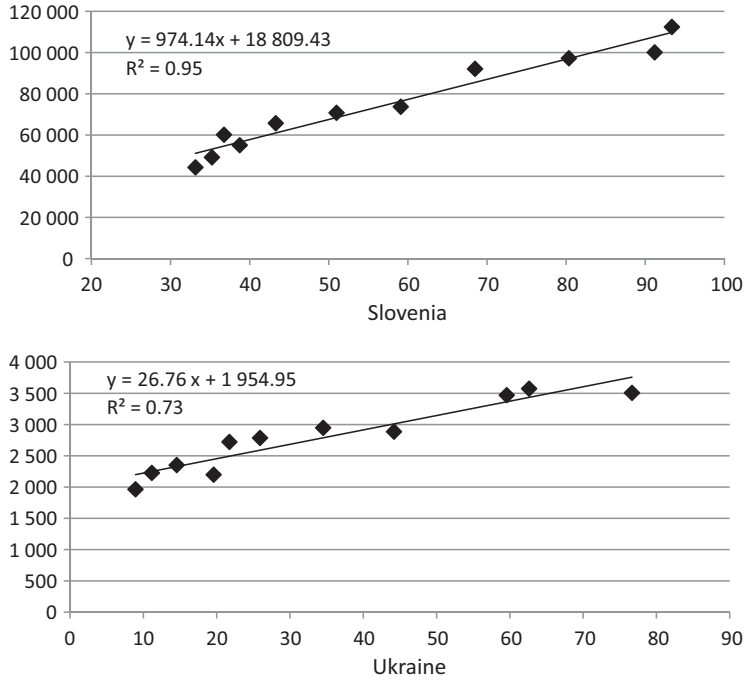

FIGURE 8. The relationship between financial system and agriculture

Source: Own estimates based on data from World Bank 2014a, b.

financial system. On the contrary, farms in Slovenia are majorly small family farms, which depends on subsidies from Common Agricultural Policy of the EU [Bojnec, Latruffe 2013], off-farm incomes [Bojnec, Fertő 2013] and different measures for agricultural and rural development [Volk, Bojnec 2014].

CONCLUSIONS

In spite of the most recent deterioration in the financial system in Slovenia, the Slovenian financial system is more developed than the Ukrainian financial system. The Slovenian financial intermediaries perform their functions better than in Ukraine. The financial intermediaries in Slovenia provide better information to improve resource allocation and to foster growth than in Ukraine. However, the level of performance of the financial market functions is similar in Slovenia and Ukraine.

The partial regression analysis showed a positive linear relationship between the development of financial system and agriculture value added per worker. A significant relationship for both Slovenia and Ukraine is found between the

volume of private credit by deposit money banks (in per cent of GDP) and agriculture value added per worker.

Loans play crucial role for financing of very large farms in Ukraine, while a large majority of small and households run farms are more likely to not have access to credit. In Slovenia, family farms rely also on off-farm incomes and subsidies for agriculture and rural development. To sum up, an issue for future research would be development of micro-financial institutions for large majority of small and households' farms in Ukraine, which are constraint by access to finance. For Slovenia and Ukraine relevant research issues are also capital markets for agriculture and rural development in combination with other structural and cohesion funds for regional development focusing on agriculture and rural development.

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ANALIZA PORÓWNAWCZA SYSTEMU FINANSOWEGO W SŁOWENII I NA UKRAINIE

Abstrakt. W artykule przedstawiono analizę porównawczą odnoszącą się do wskaźników mobilizacji i oszczędności, zapewnienia informacji, ograniczania ryzyka oraz ładu korporacyjnego w kontekście funkcjonującego systemu finansowego w Słowenii i na Ukrainie. Wyniki przeprowadzonych badań potwierdziły, że

system finansowy w obu krajach oparty jest na bankach, ale wyższy poziom jego rozwoju odnotowano w Słowenii niż na Ukrainie. W Słowenii w okresie pogorszenia sytuacji gospodarczej i globalnego kryzysu finansowego odnotowano spadek wydajności systemu finansowego. Pośrednicy systemu finansowego odgrywają istotną rolę w gromadzeniu oszczędności, banki natomiast w całym systemie finansowym udzielały kredytów głównie przedsiębiorstwom. Kredyty odgrywają również istotą rolę w finansowaniu dużych firm na Ukrainie, w Słowenii natomiast finansują głównie rolnicze gospodarstwa rodzinne, które opierają swoją działalność także na pozarolniczych dochodach i dotacjach związanych z rozwojem obszarów wiejskich.

Słowa kluczowe: wskaźniki finansowe, system finansowy, analiza porównawcza, rolnictwo i finanse, Słowenia, Ukraina